



Consulting Civil Engineers

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May 10, 2021

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Jeff Madejczyk
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Via email

Dear Mr. Madejczk:

As requested, on behalf of Ron Olson Construction, Sunde Engineering, PLLC is submitting additional information to the San Francisco Town Board acting as the RGU for the Ron Olson Construction Proposed Sand and Gravel Mine (Project) EAW. Additional Information was requested by the Town Board in Resolution 2021-_____, adopted by the Board on April 13, 2021. Information is presented according to the topics.

The EAW, comments, response to comments, and the additional information submitted as requested by the Board from the proposer, will be used collectively by the Board in making their decision on the need for and EIS. In determining whether or not the Project has the potential for significant environmental effects the RGU must compare the impacts that may be reasonably expected to occur from the project with the following criteria established under Minn Rule 4410.1700 Subp. 7:

- A. type, extent, and reversibility of environmental effects;
- B. cumulative potential effects. The RGU shall consider the following factors: whether the cumulative potential effect is significant; whether the contribution from the project is significant when viewed in connection with other contributions to the cumulative potential effect; the degree to which the project complies with approved mitigation measures specifically designed to address the cumulative potential effect; and the efforts of the proposer to minimize the contributions from the project;
- C. the extent to which the environmental effects are subject to mitigation by ongoing public regulatory authority. The RGU may rely only on mitigation measures that are specific and that

can be reasonably expected to effectively mitigate the identified environmental impacts of the project; and

D. the extent to which environmental effects can be anticipated and controlled as a result of other available environmental studies undertaken by public agencies or the project proposer, including other EISs.

1. Groundwater Resources:

The Township requested additional information regarding groundwater resources at the Project Site and how they will be monitored and protected to ensure compliance with the Town's Ordinance:

The Township Ordinance contains standards that are protective of the groundwater. While many sand and gravel mining operations mine material located below the water table, the Township Ordinance does not allow mining within ten feet of the water table.

Six soil borings were drilled across the proposed mine area to verify the water table elevations across the site. The soil borings were drilled by Chosen Valley Testing. Water levels were measured by Sunde Engineering while the hollow stem auger was still in the hole. After the soil borings were completed, Sunde placed lath at each of the soil boring locations and E.G. Rud and Sons, Inc., surveyed the location and elevation of the soil borings. It should be noted that Sunde could not stake the exact hole location of SB-01 could not be staked by Sunde for the surveyors as cuttings were no longer visible at the time the holes were of the survey on 3/18/2021. A hub was placed at the approximate location of SB-01 by Mr. Olson. The hub was located by the surveyors. Mr. Olson was on site with the drillers when they drilled SB-1 and the location and elevation is deemed accurate.

A water table map was prepared based on the data gathered. The verified water table elevations will be used as a basis for establishing the proposed maximum mining depths to maintain ten foot separation between the water table and the mine excavation. The direction of groundwater flow was also confirmed by the soil borings. The site is located where the deeper valleys of Silver Creek and Bevans Creek, represent areas of discharge that influence groundwater flow directions and gradients. The survey, soil boring map, and water table map are included as Attachment 1 to this letter.

Methods for monitoring the depth of excavation can be considered during the IUP process. Typically, this would be in the form an annual survey of the mine floor by a registered land surveyor to documenting pit floor elevations, or establishing a benchmark on the floor of the active phase of mining so that the operator can monitor elevations on a regular basis and the benchmark is available for the Township to monitor elevations at any time during a site inspection.

Chosen Valley prepared logs of each boring. The general surficial geology of the Site was confirmed which includes a sand and gravel deposit that thins to the west that is underlain by a thick sequence of clay.

Area well logs, previously included as an attachment to the EAW, show that area wells are not completed in the shallow water table aquifer that immediately underlies the Site, but are finished in a deeper buried aquifer. A thick sequence of clay layers acts as a confining layer between the water table aquifer beneath the site and the deeper drinking water aquifer. This confining layer limits a hydraulic connection between the two aquifers and provides protection of the drinking water aquifer. The

Metropolitan Council concluded upon their review of the hydrogeology that nearby drinking water wells are unlikely to be impacted by the operation due to their distance and depth.

There will be no dewatering at the site and no aggregate washing or high capacity wells drilled on the site and therefore the project should have no impact to surrounding residential supply wells.

The Site will operate under an MPCA General NPDES Permit for nonmetallic mineral mining and associated activities. A Pollution Prevention Plan that contains spill prevention and response measures is a requirement of the permit. Employees must undergo spill prevention and response training and the operator is required by law to report spills of any type of petroleum product to the State Duty Officer. Should a spill occur the, MPCA oversees spill response and clean up.

Stormwater management at the Site will promote infiltration. Infiltration is a best management practice used throughout Minnesota to promote recharge of groundwater systems. The MPCA has identified certain industries with a higher potential to contaminate groundwater and prohibits them from using infiltration devices as a stormwater management technique. Sand and gravel mining is not included in this group and the MPCA specifically allows infiltration as a best management practice at these types of facilities.

Surface water resources are also protected under this project. Mine limits are setback greater than 100 feet from any wetland. Carver County ordinance requires a wetland transition setback of 20-50 feet depending upon the site conditions. (See Attachment 2). The adjacent wetlands are groundwater fed. There will be no pumping of groundwater and no dewatering that would have the potential to cause a significant effect to the elevation of the water table.

The LGU issued a notice of decision approving the wetland delineation locations and types. (See Attachment 3). Wetland 3 is a seasonally flooded wetland basin that encompasses 0.01 acres. The GPS data provided by the delineator indicates that the wetland is 350 square feet. The delineation report indicates that contributing hydrology is a drain tile system that outlets at the north end of the delineated wetland. According to a diagram of on-site drain tile provided by the proposer, the majority of the drain tile feeding the wetland is located north and west of the wetland. Contributing drainage area will be reduced approximately 12% and a ratio of approximately 5,927 square feet of drainage area to 1 square foot of wetland will remain. This is more than sufficient to sustain a wetland of this size. However, because the wetland is situated at the head of the ravine, only a very small depression can pond water, all excess water flows south down the ravine. No impacts to any of the adjacent wetland basins are anticipated as a result of this Project.

Carver County is the ongoing regulatory authority that oversees the Wetland Conservation Act. Direct and indirect impacts to a wetland are regulated through Carver County in accordance with the Wetland Conservation Act.

2. Traffic:

Information from the Proposer regarding mining operations as to the specific roadway improvements that will be completed and how daily traffic will be managed.

The proposer has committed to working with the Township to improve the haul route from the access point of the mine along 159th to Joyce Road and along Joyce Road to County Road 50. Improvements would include providing a paving section that meets a 9 ton standard. Design plans will include surveying existing conditions and determining Township requirements in terms of width, shoulders, and typical sections. The proposer will work with the Township to address the current issue with the culvert under Joyce Road, which has been identified by the Town Board as requiring replacement. The cost of the improvements will be borne by the proposer, except cost sharing, if applicable, for culvert replacement will be determined as appropriate through an agreement acceptable to the Town Board. The design and construction drawings will include any required grading and appropriate erosion and sedimentation control measures. All necessary permits required as a result of the proposed improvements will be obtained as required. The details of the improvements will be set forth in a Developer's Agreement or some other controlling document between the Proposer and the Township.

The Carver County Highway Department has also commented that per their technical review, consideration of best practices, and in accordance with County policy, the County requires the following conditions for approval of the proposed development per direct traffic impacts to the County highway system from the proposed use:

The addition of 8 foot wide paved shoulders is required on CSAH 50 to increase safety conditions at the intersection due to the increase in heavy commercial vehicles turning on and off the County highway. Applicant shall add 8 foot wide paved shoulders (approx. 6 ft. additional to construction plans) on CSAH 50 from 1/8 mile of west of Joyce Rd. to the CSAH 50/Joyce Rd. intersection. The County plans already include an 8 foot wide paved shoulder east of the intersection for erosion needs

The applicant will work with Carver County Public Works in addressing the necessary improvements required by the County . The agreed upon improvements and scheduling will be a condition of the IUP.

Carver County Public has indicated that they will monitor traffic operations and safety at the CSAH 50/Joyce Road access. The Proposer will work with County Public Works should future access or safety improvements be needed. The applicant shall work with the County regarding the use of temporary trucks hauling warning signage on CSAH 50 in both directions of traffic in advance of the Joyce Rd. intersection during hauling activities that exceed 30 trucks per hour. (The project is limited to 30 loads per hour maximum and so the Proposer will work with the County for further clarification on the threshold for the signs as well as where the signs should be located etc.) The Proposer will make actual traffic information available to County per request.

3. Mine Reclamation

Additional details from the Proposer regarding mine reclamation practices that will ensure preservation of agricultural lands, preserve integrity of the soil, and achieve final management of stormwater.

The project will require a permit from the Carver County Water Management Organization which requires the submittal and approval of a Topsoil Management Plan. A draft of the Topsoil Management Plan is as follows:

Purpose:

The purpose of this topsoil management plan is to develop a plan to establish the existing topsoil quality, manage topsoil removal and storage so that sufficient quantities and qualities are available for reclamation, and verify quality of topsoil at time of reuse when reclaiming completed portions of the mine.

Establish Existing Topsoil Quality:

Topsoil quality will be established through soil testing of onsite soils. Soil testing will be performed in each phase prior to initiating stripping activity in any given phase. Two soil samples per phase will be collected and tested for material passing the ¾ in sieve, material passing the No 4 inch sieve, clay content, silt content, sand content, organic matter content, compaction, and pH. There are four proposed phases at the mine site, so a total of 8 topsoil samples will be analyzed over the life of the mine.

Frequency: 2 samples per phase	
Material Passing the ¾ in.	ASTM D 422
Material Passing No 4 in.	-
Clay	ASTM D 422
Silt	ASTM D 422
Sand	ASTM D 422
Organic Matter	ASTM D 2974
pH	ASTM G 51
Compaction	Field Test

Testing results will be maintained at the office of Olson Construction and used to verify that the topsoil used in reclamation is of similar quality as the pre-mining topsoil.

Test locations should be chosen to obtain representative samples from the predominant soil types located on site. A figure will be prepared to illustrate approximately soil test locations, soil types and phases.

Topsoil Removal and Storage:

A combination of scrapers, bulldozers, excavators and haul trucks will be used to remove topsoil from each phase to be mined. Removal will be performed with the goal of recovering as much of the topsoil as possible while preventing mixing the topsoil with underlying subsoils and overburden.

The stripped topsoil will either be placed over a reclaimed area that has been brought to final grade and is ready for topsoil and vegetation establishment or it be stored onsite in perimeter screening berms. Perimeter screening berms will be seeded and mulched to establish vegetation and minimize erosion and sedimentation. Perimeter berms will be constructed in phases as subsequent portions of the mine are stripped.

Overburden must be stockpiled separately from the topsoil.

Testing of Stockpiled Topsoil Prior to Redistribution:

Prior to redistributing topsoil that has been stockpiled for more than one year, the topsoil must be tested to verify that it is of similar quality as the original topsoil. Variation in the testing results of the original topsoil is expected. Stockpiled topsoil should be within 1% of the range of values for organic matter, clay, silt, and sand content and within 0.5 pH units of the range of values obtained from the pre-mining tests. Soils not meeting these criteria will need to be amended (compost etc.) and retested.

Frequency of testing should correlate to one test per 6,500 cy of stockpiled topsoil that has been stored for more than one year prior to redistribution.

Topsoil that is stripped and redistributed within one year of the source stripping operation does not need to be retested.

Keep records of topsoil testing locations, stockpile locations correlated to test locations, and testing results on file until final site reclamation is approved by County.

Redistribution of Topsoil:

As mining is completed across portions of the mine, reclamation fill is placed to bring the mined area up to final grade. Overburden may be used as the uppermost layer of backfill in the upper portion of the reclamation fill area. Avoid compaction in the upper five feet of backfill.

Disk, chisel plow, rip, or scarify compacted subsoil as necessary prior to distributing topsoil evenly over the prepared subgrade. Redistribute onto the prepared site only during dry conditions using appropriate equipment to minimize compaction.

Spread topsoil to a sufficient depth so that after light rolling and natural settlement the completed work will provide the required minimum depth of topsoil. Where adequate soil volumes exist, topsoil will be redistributed to depths of up to 18 inches.

Soil compaction not to exceed 1,400 kPa/200 psi for a minimum of the top 12" of soil.

Verification of Sufficient Topsoil for Reclamation:

All topsoil to be retained on site. No topsoil may be hauled from the site or sold.

Volume of topsoil needed for redistribution will be calculated and included in the plan.

Comments were received questioning the ability reclaim sand and gravel mining operations back to agricultural production. In practice many sand and gravel mine site have been successfully reclaimed to agricultural production throughout the Midwest. Attachment 4 illustrates the progression of one mine in

Empire MN illustrating pre mining agricultural m activity, mining activity, including mining into the water table, reclamation activity, including backfilling of excavated water bodies, application of subsoil and topsoil and return of agricultural production as the primary land use. Reclamation details will be ser forth in the IUP.

Reclamation of the Site will meet the standards of the Township Ordinance. A Reclamation Plan including grades and written narrative will be submitted to the Township as part of the IUP process. The conceptual reclamation grades shown on C3 of the EAW plan set will be revised to reflect a minimum ten foot separation distance between the verified groundwater table and the excavation/reclamation grades. In some areas of the mine the bottom of the sand and gravel deposit is higher than ten feet above the water table and bottom of the mine.

Stormwater post reclamation sill be managed through Infiltration. Infiltration design calculations will be performed and submitted as part of the reclamation plan. Infiltration devices will be designed in accordance with the Minnesota Stormwater Manual. The design may include basins and or trenches. These features will be located in the eastern and southeastern portions of the mine floor. These will be the lowest areas of the mine floor and where the sand and gravel deposit, which has a high infiltration capacity, extends below the bottom of the mine floor. In these areas, infiltration basins or trenches will be designed and constructed that capture, temporarily store, and infiltrate the design volume of water into the surrounding naturally permeable soil over several days. Because existing Site soils are for the most part HSG A, which naturally promote infiltration, the reclamation management of stormwater through infiltration is similar to the pre-mining condition.

Reclamation will include the following:

- No graded slope shall exceed a 5:1 ratio (twenty (20) percent). The final grade slope shall commence at the setback, unless provided otherwise in the Operations Agreement. Berms will be removed to the original elevation of the land, unless the Board has approved a different elevation as part of the End Use Plan.
- Excavated, graded or back-filled areas, shall meet the following requirements:
- All materials used for backfilling in any area of the reclamation shall be tested to be free of all contaminants, and shall be non-noxious, non-flammable and non-combustible.
- Infiltration basins will be designed to infiltrate stormwater runoff and not allow the graded or back-filled area to permit stagnant water conditions.
- Graded or back-filled area shall be surfaced with soil of a quality at least equal to the topsoil of land areas immediately surrounding, and to a depth of at least three (3) inches.
- Areas are expected to be returned to agricultural production. Reclaimed phases not returned immediately to row crop production will be planted with a hay crop or other temporary seed mix to provide stabilization until row crops can be planted.

- Seeding and mulching shall be consistent with Minnesota Department of Transportation specifications for rights-of-way. Exceptions to seeding and mulching include areas returned to agricultural production.
- Reclamation will be conducted in phases.
- Soil erosion and sedimentation control measures will be implemented.
- Unless otherwise amended or approved by the Township, all final grades and site restoration efforts shall be consistent with the reclamation plan. Reclamation grades approved by the Township represent the lowest elevations and steepest slopes. Site soils balance and volumes of available imported fill may result in the ability to raise the floor of the mine or flatten slopes even further.
- The end-use plan of returning the site to agricultural uses is conserved safe. The end-use plan shall be consistent with the San Francisco Township Comprehensive Plan.

In addition to the specific items requested in the resolution, the following information addresses other comments that were received during the public comment period.

Noise:

The proposed gravel mine will be required to operate in compliance with applicable State noise standards. The State noise standards have been established on the basis of preservation of health and welfare and are consistent with speech, sleep, annoyance, and hearing conservation requirements of receptors associated with various land use classifications. The site will be required to comply with the NAC1 the strictest land use classification standards that apply to residential areas and farmsteads for both daytime and nighttime hours. Noise emissions from the Project are subject to on-going public regulatory authority and the MPCA regulates noise in Minnesota. The MPCA reviewed the noise section of the EAW and concluded in their EAW comment letter that they believe that the Project can meet the state noise standards as presented. Proposed mitigation including berms, recessed operation of processing equipment, mining and processing setbacks, and use of broad band (white noise) back up alarms are effective mitigation measures identified by the project proposer to reduce identified environmental impacts and ensure compliance with State noise standards. Other sand and gravel mines in Carver County operate with much smaller setback requirements from adjacent residences.

Noise Modelling/Impact Study

A comment was received questioning why a noise model/impact study was not performed as part of the EAW. Noise models are typically not developed in an EAW for Projects of this magnitude. The noise section of the EAW was prepared in accordance with EQB guidance. Chapter 3 of Minnesota Environmental Quality Board's (EQB) publication "EAW Guidelines Preparing Environmental Assessment Worksheets EAW guidance" includes Item by item guidance for preparing EAWs. Under item 17. Noise, the guidance is as follows:

“17. Noise. Any major noise should be described, including information on their levels (dBA) and hours of duration. However, construction noise need not be described unless the construction of the project will be unusually noisy (for example, the blasting of rock); prolonged; affect especially sensitive receptors (a hospital, for example); or otherwise can be expected to have unusual noise impacts during construction. The locations of and distances to sensitive receptors should be given. For projects in the vicinity of major noise sources, such as highways, railroads or airports, noise levels should be estimated using generally accepted noise prediction models, regardless of whether the noise standards are legally enforceable with respect to the project. Mitigation measures should be identified, and their effects assessed. Local ordinance requirements regarding noise should be reviewed and discussed, and any accommodations made by the project, any variances sought by the project, or other details related to noise issues should be discussed in this item.”

The guidance document also includes category specific guidance. The guidance is as follows:

“Non-metallic mineral mining (Subp 12): Give sources of noise, characteristics of noise and distances to receptors. Discuss measures to minimize these impacts; indicate the extent to which local permits can impose conditions to minimize impacts.”

EQB’s guidance for sand and gravel mining (non-metallic mineral mining) does not include preparation of a noise analysis to determining the project’s potential to meet or exceed noise standards at surrounding land uses. None-less, a desktop analysis was conducted and presented in the EAW. PA, which is the public agency with on-going regulatory authority reviewed the Noise section of the EAW and concluded in their EAW comment letter that they believe that the Project can meet the state noise standards as presented. Proposed mitigation including berms, recessed operation of processing equipment, mining and processing setbacks, and use of broad band (white noise) back up alarms are effective mitigation measures identified by the project proposer to reduce identified environmental impacts and ensure compliance with State noise standards.

Dust:

The Site will operate under a Fugitive Dust Control Plan. Dust emissions are regulated by both the Township through the Interim Use Permit and the state through an MPCA Air emissions permit . Specific mitigation measures including perimeter berms and recessing operations on the floor of the mine, paving routes from the haul road to the mine area, watering internal haul roads, imposing speed limits on internal haul roads, and limiting the number of haul trucks per hour are all effective fugitive dust mitigation measures that will be implemented at the Site. Fugitive dust emission at the Site are subject to on-going regulatory authority. The Township has the authority under the San Francisco Township Mining Ordinance to require additional remedies. The

The Project qualifies for the State’s Nonmetallic Mineral Processing Air Emission General Permit (General Air Permit). The permit covers both emissions from processing equipment (such as crushers, screens, transfer operations including belt conveyors, stackers, ladders, chutes, feeders, pneumatic systems, internal combustion engines, bulldozers, loaders, and other related equipment) and fugitive dust emissions (such as storage piles, paved and unpaved roads and operations areas). Air emissions generated at the mine will be subject to on-going public regulatory authority under the General Air Permit. Conditions within the General Air Permit include proven effective mitigation measures such as standard pollution control equipment, sufficient moisture content of feed materials, minimizing drop heights along conveyers and other transfer points, and control of non-process dust emissions by water applications to unpaved roads and handling areas. The MPCA has several levels of air permits. Only certain levels of permits, specifically those associated with a high potential to emit air pollutants are subject to air modelling as part of the air emissions permit process. Air modelling is not required for the permit level of this proposed operation and is not a standard component of an EAW.

Air Emissions/Ambient Air Quality and PM4 Silica:

Crushing and processing can create air borne emissions of silt, dust and other fine particles. These are typically referred to and regulated based on the size of particle and their ability to be inhaled and travel into the lungs. Particulate Matter (PM) emissions include fine particles (PM2.5), which are 2.5 micrometers in diameter and smaller, and coarse particles, which have diameters between 2.5 and 10 micrometers. Fine particles can be emitted directly from a variety of sources, including vehicles, smokestacks and fires. They also form when gases emitted by power plants, industrial processes, and gasoline and diesel engines react in the atmosphere. Coarse particles include road dust that is kicked up by traffic, some agricultural operations, construction and demolition operations, industrial processes as well as crushing and processing of aggregates.

The Federal Environmental Protection Agency (EPA) sets two types of National Ambient Air Quality Standards for particle pollution: primary standards, to protect public health, and secondary standards, to protect public welfare. The law requires that primary standards be “requisite to protect public health with an adequate margin of safety,” including the health of sensitive groups of people which include people with heart or lung disease, children and older adults, and nonwhite populations that may be at particular risk. Secondary standards must be “requisite to protect the public welfare” from both known and anticipated adverse effects.

In addition, Minnesota has adopted state ambient air quality standards (Minn. Rules Chapter 7009.0080 MINNESOTA AMBIENT AIR QUALITY STANDARDS). The State standards are the same as the federal standards for PM10 and PM 2.5. In addition, Minnesota has adopted a standard for Total Suspended Particulate. Table 1 includes the primary (strictest) Federal and State ambient air quality standards.

Table 1 Ambient Air Quality Standards

	24-hour PM₁₀ (µg/m³)	Annual PM₁₀^(a) (µg/m³)	24-hour PM_{2.5} (µg/m³)	Annual PM_{2.5} (µg/m³)	24-hour TSP (µg/m³)	Annual TSP (µg/m³)
Federal	150	-	35	12		
State	150	-	35	12	260	75

The MPCA has regulatory authority over air emissions. Processing operations are subject to an air permit from the MPCA. The MPCA has developed a State General Permit for Non-Metallic Mineral Processing (General Air Permit). The permit contains operating conditions to ensure that mine sites operate in compliance with the ambient air quality standards. Operations that produce up to 3,000,000 tons per year are eligible for the General Air Permit. The Proposer anticipates producing a maximum of 225,000 tons per year and qualifies as a small operator within the General Air Permit. The General Air Permit regulates air emissions from the processing equipment from fugitive dust from unpaved internal haul roads and handling areas.

A number of dust control measures will be incorporated into everyday operations and when active processing occurs on the site. These include recessing processing operations to physically trap air borne particles and maintaining proper moisture control, test moisture content of feed material at each stationary source in accordance with the General Air Permit (feed material must be kept at a moisture content of 1.5% or greater) and minimizing the drop height at all transfer points. The proposed operations must comply with current MPCA rules and air permitting procedures and predicted levels of particulates are below the standards indicated in the Table above.

Respirable Silica (PM₄ Silica)

The comments noted the potential for silicosis which is a lung disease caused by the inhalation of respirable crystalline particles with aerodynamic diameter of 4 micrometers or less. There is no state or federal ambient air quality standard for PM₄ Silica. However, the Mn Department of Health has established a Chronic Health Based Value (HBV_{chronic}) of 3 µg/m³ for PM₄ Silica. Respirable silica (PM₄ Silica) are very small particles of silica, typically at least 100 times smaller than ordinary sand found in a sand and gravel mine. Exposure to PM₄ Silica can occur in many occupations, for example: sand blasting, bricklayers, concrete workers, construction workers cutting stone or drilling in stone, and grinding operators. PM₄ Silica from crushing operations at a sand and gravel operation is considered an occupational safety concern. The Federal Mine Safety and Health Administration (MSHA) has regulated occupational exposure to silica for many years. More recent studies conducted in Minnesota and Wisconsin on the ambient levels of PM₄ Silica associated with industrial sand mines concluded that sand mining and processing facilities contribute very little, if anything, to the ambient respirable crystalline silica concentrations. Sand and gravel operations would be expected to have even less impact than an industrial sand mine and the Project does not have the potential for significant environmental effects related to ambient levels of PM₄ Silica.

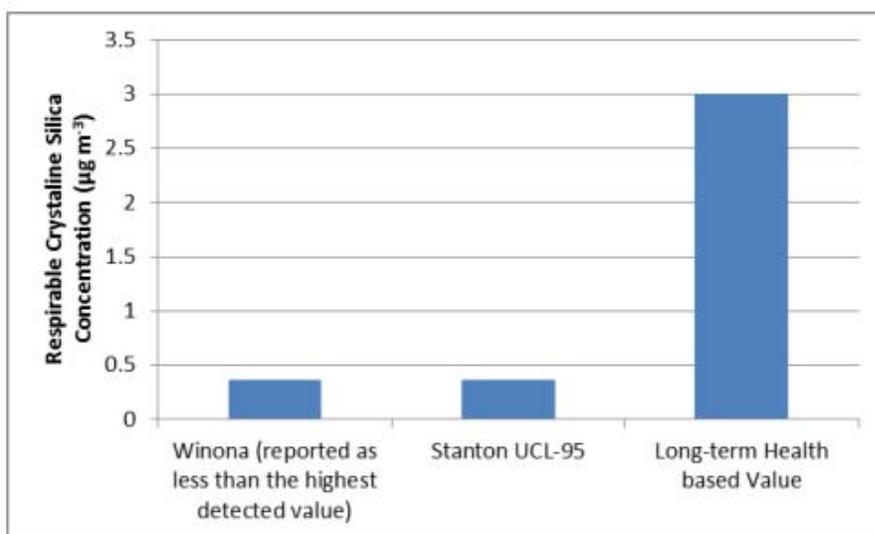
The Wisconsin and Minnesota studies are summarized below. An increase in the demand for silica sand by the oil and gas industry for fracking wells in the early to mid-2010s resulted in the permitting and or expansion of several silica sand mines across Minnesota and Wisconsin increasing regulatory and public

awareness. Fenceline air monitoring for ambient levels of PM₄ Silica was required as part of the air permits listed for the new industrial sand mines in both states. In the Wisconsin study data was compiled by Richards and Brozell¹ and included long term 24-hour monitoring of PM₄ Silica in the ambient air at active sandstone mining and processing facilities. The data was used to compare the long-term average concentrations of PM₄ Silica at the property line against chronic reference exposure guidelines, specifically the California Reference Exposure Level (REL) of 3.0 µg/m³. The long term average PM₄ crystalline silica concentrations ranged from 0.05 to 0.45 micrograms/m³ (sample values below the limits of quantification were treated as zero). All of the long term average concentrations were 5-20% of the Minnesota Department of Health's and California Office of Environmental Health Hazard Assessment's PM₄ crystalline silica chronic reference exposure limits of 3.0 micrograms/m³. The data were all within typical background concentrations. The conclusion is that sand mining and processing facilities contribute very little, if anything, to the ambient respirable crystalline silica concentrations.

In the Minnesota Study, the MPCA conducted ambient air monitoring for one year (January 1, 2014 – December 31, 2014) to monitor emissions from diesel truck traffic and activities related to silica sand mining². Monitors were placed in the City of Winona where there was concern about potential exposures to air pollutants from silica sand-related facilities and silica sand related transportation facilities. Hourly measurements of PM_{2.5} and 24-hour measurements every six days of PM₄ Silica were collected. The study also placed an air monitor in Stanton, MN where there are no silica sand mining, processing or transportation related facilities contributing to ambient PM₄ Silica concentrations, but there are other sources of airborne silica such as unpaved roads and farm fields. The Stanton monitoring results were used as a reference or “background” location to compare to the Winona results because PM₄ Silica is a fairly ubiquitous pollutant and is not unique to silica sand mining and processing facilities. According to the study, the data does not suggest an elevated airborne level of respirable crystalline silica in the City of Winona in comparison to the reference location. Over the course of the year, only two samples contained concentrations of PM₄ Silica above the method detection limit of 0.3 µg/m³. (These two samples were only slightly above the method detection limit). Based on the monitoring results, the study concluded that the average silica concentration in Winona is estimated to be less than the detection limit of 0.3 µg/m³, while the results for the Stanton control area 95% upper confidence limit of the arithmetic mean (UCL-95%) was 0.4µg/L. These results compared to the Minnesota HBV are illustrated on the graph below from the MPCA's Winona study. There is no evidence that the silica sand mines or transfer facilities were exceeding the long term health based value.

¹ John Richards and Todd Brozell, Fenceline PM₄ crystalline silica concentrations near sand mining and processing facilities in Wisconsin. *Mining Engineering*, 2015, Vol. 67, No. 10, pp.53-59. Official publication of the Society from Mining, Metallurgy & Exploration.

² Minnesota Pollution Control Agency. Winona Community Air Monitoring, January 2014–September 2014; May 2015. Available online: <https://www.pca.state.mn.us/sites/default/files/g-85-03.pdf> (accessed on Sept. 20, 2017).



(From Minnesota Pollution Control Agency. Winona Community Air Monitoring, January 2014–September 2014; May 2015. Available online: <https://www.pca.state.mn.us/sites/default/files/g-85-03.pdf> (accessed on Sept. 20, 2017).

Ravine Area and Bluff Protection

Bluffs are protected features within Carver County. As discussed in the EAW, bluffs and bluff features are defined in the Carver County Zoning Code as follows:

BLUFF. A topographic feature such as a hill, cliff, or embankment in which the average grade of any portion of the slope is 25% or greater and there is at least a 25-foot rise in elevation.

BLUFF IMPACT ZONE. A bluff and land located within 20 feet from the top of a bluff.

BLUFF "TOP". The top of a bluff is a point on the upper part of a bluff where the average slope levels off to 18% or less.

There will be no grading, filling, berming, or other land disturbance associated with the Project within the bluff impact zone. In addition, the county ordinance prohibits mining within 100 feet of the top of the bluff. Reclamation slopes are required to be stabilized at a 5:1 (H:V) slope or less so that any infiltration device will be setback over 300 feet from the top of the bluff.

Cultural Resources:

SHPO requested a Phase 1 cultural resources study in their review and comments. In response to comments study was conducted. Please see Attachment 5 .

Stormwater:

Currently runoff is from the agricultural fields with approximately 75% of the stormwater within the proposed mine limits draining to the south to Silver Creek, and 25% draining to the north towards 159th Street and then to the east to an off-site low area. Approximately 90% of the Soils within the proposed

mine area are Hydrologic Soil Group A. This soil type is characterized by granular, well drained soils that produce low rates of runoff compared to heavier soils composed predominantly of silt and clay.

Stormwater runoff from the portion of the mine area that drains north collects in two low depressions just south of 159th. Historically, a tile line has run through these two depressions parallel to and south of 159th that facilitates drainage of these low depressions. Drain tile was initially placed in this location by a previous property owner. The current landowners replaced and realigned the original tile a few years ago. The drain tile currently drains to the east and then northeast off the site. There is a culvert under 159th but the invert is at a higher elevation than the bottom of the depressions and so with the drain tile, stormwater rarely flows north. Approximately 7.5 acres that currently drains to the depressions will drain internally and infiltrate into the groundwater. Removing this drainage area will not have a significant effect on the wetland located north of 159th since water does not currently drain to the north under 159th except under extreme events when storage capacity of the depressions is exceeded.

Mr. Olson has been working with adjacent property owners to modify the outlet of the drain tile north under 159th onto property owned by the Proposer. This will return a portion of the drainage area back to the north and restore drainage patterns over a portion of the subwatershed to the north that currently drains to the depressions. Any work associated with the relocation of the drain tile must be performed under any applicable permits. The relocation of the drain tile is not related to the proposed Project.

Location:

It is not within the scope of an EAW analysis to consider alternative sites for the proposed action. The review is conducted based on the proposed activities for the identified site. Sand and gravel resources are scarce in the undeveloped portions of the County. Aggregates need to be mined in the areas where they were deposited by past glacial activity. The state legislature recognized the importance of aggregate resources and instructed the Minnesota Department of Natural Resources (DNR) to protect and promote their orderly and economically sound development. Mn Statute 84.94 AGGREGATE PLANNING AND PROTECTION §Subdivision 1.Purpose. It is the purpose of this section to protect aggregate resources; to promote orderly and environmentally sound development; to spread the burden of development; and to introduce aggregate resource protection into local comprehensive planning and land use controls. The original law passed in 1984 gave priority to identification and classification in areas of the state where urbanization or other factors may be resulting in a loss of aggregate resources to development and included Carver County. Aggregate mapping for Carver County shows a lack of aggregate deposits along the 212 corridor. The Carver County 2040 Plan summarizes the DNR mapping project. Carver County has two general areas that have or did have substantial extractable resources—the outwash area associated with the Minnesota River and small deposits associated with the South Fork Crow River area in the northwest portion of the County (Camden, Hollywood, and Watertown Townships). There has historically been some aggregate mining occurring in Laketown Township, but these deposits are typically isolated and quite limited in size. Most of these areas have already been mined. The deposits in the northwest area are typically somewhat larger but are of lower

quality and relatively shallow depth. The highest quality and most abundant aggregate deposits are the outwash deposits along the Minnesota River Valley.

Aggregate Resources:

The 2017 Aggregate resources Task Force established by the State Legislature to study issues related to identifying and preserving aggregate resources prepared a final report to the legislature

The Aggregate Resources Task Force recommended that the Legislature fund the Department of Natural Resources Aggregate Mapping Program proposal to better understand the location of aggregate reserves across the state. Mapping information is to be used by the DNR and local units of government in making sound land use decisions that preserve the availability of aggregate resources.

The report indicates that aggregate deposits vary greatly from one region to another. Some regions of the state have aggregate with a wide discrepancy in quality. Quality aggregate is needed to complete infrastructure projects across the state. According to the Minnesota Geologic Survey, seventy percent of aggregate reserves in the Twin Cities area covered by development and are no longer available for use. By better understanding where aggregate reserves are located, counties and municipalities will be able better plan for development without restricting access to aggregate reserves.

Expanding population drives an increase in demand for aggregate materials. Aggregate is vital to the state's infrastructure. Industry estimates that about 25% of the total aggregate consumed in a year is used for construction or maintenance of the state's 133,000 miles of public roads. About 25% is used for public works projects like dams, airports, and public buildings. About 25% is used for private residential construction. About 25% is used for commercial building projects and industrial applications like concrete, asphalt, railroad ballast, and agricultural lime among many others. Aggregate consumption is tied to a high standard of living and quality of life.

The 2017 task force grew out of the need to update previous work in this area. Aggregate materials are a finite natural resource. Although once plentiful, aggregate sources are diminishing around the state from resource depletion as well as land uses that prohibit mining. Aggregate shortages are already occurring in some locations. Aggregate inventories are lacking in critical areas of the state. More effort is needed to identify aggregate resources before development occurs that precludes mining, to conserve known aggregate deposits, and to mine aggregate prior to development whenever possible.

2020 Administrative Permit

Several comments were received regarding the Proposer's 2020 administrative permit to mine up to 10,000 cy of materials on a 6.5 acre portion of the property that located outside of the Proposed mine limits. The answer to question 6.f. should be answered yes to reflect this earlier project. [Note that the response to comments becomes a part of the final EAW and so this correction is made through the response to comments]

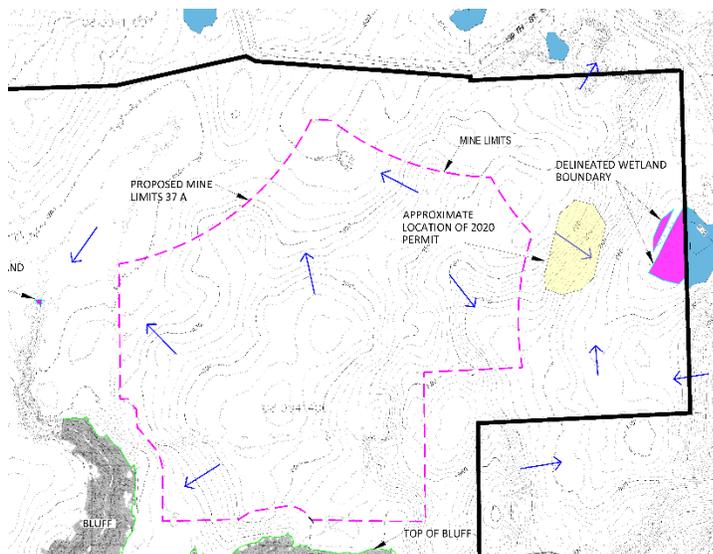
As background, the County Ordinances allow mining up to 10,000 cy under an administrative permit. The applicant was under the impression that the administrative permit could be issued on an annual basis allowing removal of up to 10,000 cy per year. The County determined this was not the intent of the permit and therefore the applicant needed to apply for an IUP if he wanted to remove material over a longer period of time. That initiated this EAW Process

The 6.5 acre area included in the administrative permit included both mining and operations area. The size was further limited to five acres under amended permit conditions. The volume of material removed from the Site was less than 10,000 cy and included approximately 6,500 cy material were hauled from the Site and 1,500 cy of material is currently stockpiled on the site. The material was excavated from an area of approximately less than one acre. The material was excavated from the side of a hill. The slope of the hill before mining was approximately 5.75:1. Based on information from the proposer, the depth of the cut into the hill was an average of approximately 15 feet. Removing 8,000 cy of material would require an area of approximately 0.7 acres. Information submitted by the Proposer to the County indicates that the proposed mine area was between 0.7 acres and 1.3 acres. The excerpt below illustrates the approximate location of the work with respect to the proposed mine site.

When coordinating reclamation of the mine site the County and the Towns Board requested that the 1,500 cy sand stockpile remain in place until a decision on the mining IUP is made. Erosion control has been placed around the perimeter of the stockpile.

When considering the total mining area of both the proposed Project (37 acres) and the area mined as part of the 2020 administrative permit (1.3 acres) in accordance with phased actions and the 3 yr. look back rule, the combined areas do not meet the mandatory EAW Threshold. An EAW is mandatory if it the Project exceeds 40 acres that are mined to a mean depth of ten feet or more. The 6.5 acres authorized in the administrative permit included operational and stockpiling area, but the actual area mined to a mean depth of ten feet or more was less than 1.3 acres. The threshold is based on the actual mining area and would include the area mined under the administrative permit under the 3 year look back rule. 1.3 acres plus the proposed 37 acres is still under the 40 acre threshold.

The RGU has the authority to require a discretionary EAW even if the mandatory threshold has not been exceeded. ***The EAW process is the same whether an EAW is mandatory or discretionary.*** The mining activity that occurred under the administrative permit has been completed and the area, has been sloped, topsoiled and will be planted this spring. The volume of material removed was less than 10,000 cy. The area is no longer active and has been returned to agricultural activity. The activity was short term and cumulative effects are not considered to be significant.



Based on historic aerial photography a small area (approximately 0.5-0.7 acres) was used as a source of pit run in at least pre 1991. It appears that the site was used periodically up until 2012 when the access road to the area was removed and converted to farmland some time before the proposer purchased the property. Topography indicates that a depth of up to 8-10 feet of material was removed from the area. In determining if the area that was mined in the past is considered a connected action, EQB guidance requires the RGU to review three potential types of relationships between the two projects to determine if they qualify as connected actions (part 4410.0200, subpart 9b):

- One induces the other;
 - One is a prerequisite for the other and is not justified by itself (the first occurring previously or simultaneously); or
 - Neither is justified by itself; that is, the two projects are interdependent parts of a larger whole.
- Whenever two or more projects are related in any of these ways, they must be considered as one project, regardless of ownership or timing. The two projects do not induce one another (mining of the small area did not create the additional material to be mined. The current Project would be proposed regardless of whether or not the small area had been mined in the past and the original mine area is not a prerequisite for the current Project. The historic mine area is entirely within the proposed mining area and is considered in terms of potential cumulative effects as an existing condition. See Attachment X for 1991 and recent aerial photographs of the historic mine area. In reviewing historic aerial photos some mining may have occurred in other areas of the site as early as the 1950's.

On-Going Regulatory Authority

Mining is one of the most regulated industries in the United States. Mine operations are required to obtain permits and operate in accordance with rules and regulations established to protect the environment. The following public agencies have on-going regulatory authority over various aspects of the mining operation including Land Use, Noise, Dust, Air Quality, Wells and Water Appropriations,

Stormwater, Groundwater, Wetlands and Public Roadways. Mining will occur under an interim use permit with an end life associated with the removal of the resource and reclamation of the mine area.

Federal Level:

Mining Safety and Health Administration (MSHA) Worker protection

Federal Environmental Protection Agency Air/Stormwater Regulations

State Level:

MPCA – Fuel storage, stormwater, air, noise, surface and groundwater quality

DNR: water use, state listed species, public waters

Board of Soil and Water Resources: Wetlands

Local Level:

Carver County WMO: Grading, drainage and erosion control, reclamation, and topsoil management

Carver County Highway Department County Roads

Township: Interim use Permit, Local roadways

Plan revisions: Per the comments received, the limits of the shoreland district are indicated on Sheet C1 and a residential location was added to Figure 3 that was inadvertently omitted in the Figure sent out with the Draft EAW.

Sincerely,

Kirsten Pauly, PE/PG